UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 10 West 15th St, Suite 3200
HELENA, MONTANA 59626

Ref: 8MO

December 16, 2010

Ms. Liz VanGenderen
Helena National Forest
2880 Skyway Drive
Helena, Montana 59601

Re: CEQ # 20100440; EPA Comments on Warm Springs Habitat Enhancement Project DEIS

Dear Ms. VanGenderen:

The Environmental Protection Agency (EPA) Region VIII Montana Office has reviewed the Draft Environmental Impact Statement (DEIS) for the Helena National Forest's Warm Springs Habitat Enhancement Project in accordance with EPA responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major Federal agency action. EPA's comments include a rating of both the environmental impact of the proposed action and the adequacy of the NEPA document.

The DEIS presents no action and two action alternatives for vegetation management activities to reduce fuels and fire risks, improve forest resilience to fire, insects and disease, and restore and promote wildlife habitat components in the Warm Springs project area in the north Elkhorn Mountains of Montana. Alternative 2 involves 3,060 acres of timber harvest, construction of 13.7 miles of temporary roads, and 1,140 acres of prescribed burning. Alternative 3 involves 1,072 acres of timber harvest, construction of no new temporary roads, and 2,869 acres of prescribed burning. Both action alternatives include reconstruction of 8.8 miles of road and maintenance of 6.1 miles of log hauling roads. A primary difference between the action alternatives, therefore, regards construction of new temporary roads and the type of vegetative treatments to be conducted. Alternative 2 includes more timber harvest and less prescribed fire as a treatment tool to accomplish fuels reduction and vegetation restoration, and construction of the 13.7 miles of new temporary roads. We also note that most of this new temporary road construction would occur on erosive soils (land types 26 and 260).

While the EPA supports conduct of vegetation management activities to reduce fuels and fire risks, improve forest resilience to fire, insects and disease, and restore and promote wildlife habitat, we also generally recommend minimization of new roads, even temporary roads, since road construction increases sediment production and transport to streams. Roads are often the major anthropogenic source of sediment that adversely affects hydrology, water quality, and

fisheries on streams in National Forests. Roads can also fragment wildlife habitat and reduce wildlife security, and promote spread of weeds. We particularly recommend that construction of roads on erosive soils be avoided. Accordingly we favor selection of Alternative 3 over Alternative 2.

Although we also recognize that land management decisions involve environmental and resource management trade-offs (i.e., trade-offs in impacts among vegetation treatments, restoration of at risk vegetative communities, fire risk and fuels, forest health, water quality and fisheries, air quality, weed spread, wildlife, and other resource impacts). We generally consider it appropriate to evaluate environmental and resource management trade-offs while addressing project purpose and need and the significant issues and minimizing adverse environmental impacts in an effort to optimize the many trade-offs. It may be that some minimal new temporary road construction, where new roads can avoid erosive soils and have minimal effects on water quality, weed spread and wildlife habitat (and avoiding road construction on erosive soils), could be justified in an effort to optimize resource management trade-offs (e.g., allowing some increased new temporary road access with Alternative 3 to enable more mechanical removal of dead and dying trees, and thus, less burning of dead and dying trees and reduced air quality impacts, as long as water quality, weed spread and wildlife habitat were not significantly affected by new temporary roads).

The Helena National Forest, therefore, may want to consider development and evaluation of a modified preferred alternative with construction of a minimal amount of environmentally benign temporary roads in an effort to optimize the environmental and resource management trade-offs while addressing project purpose and need and the significant issues. In our more detailed comments (see enclosed), we identify desirable features we consider worthy of evaluating in a modified preferred alternative. Additional alternatives evaluation in the FEIS may also better explain to the public the trade-offs involved in making land management decisions, and may lead to improved public acceptance of decisions. We note of course that the Forest Service would need to evaluate and analyze the impacts of any new modified alternative, and display those impacts in the FEIS.

It is important to note that the Warm Springs project area includes waterbodies designated as water quality impaired by the Montana Department of Environmental Quality (MDEQ) under Clean Water Act Section 303(d) (e.g., Warm Springs Creek and the North and Middle Fork of Warm Springs Creek, and Prickly Pear Creek downstream; McClellan Creek has not been assessed by MDEQ for use water quality related use impairments). The proposed Warm Springs project will generate sediment from road activities and vegetative treatments, and fine sediment levels in Warm Springs Creek and McClellan Creek are already stated to be above the forest averages for undisturbed drainages, indicating potential impacts to fish spawning habitat. Three reaches of Warm Springs Creek are functioning-at-risk, one reach is non-functioning, and one reach of McClellan Creek is functioning-at-risk and two reaches are non-functioning. It is important, therefore, to control sediment transport to streams.

The DEIS appears to show minimal water quality effects from proposed activities, and even some water quality improvement from proposed project road upgrades, although we found the hydrological analysis confusing in places. The DEIS appears to show only a 0.2 ton/year difference in road sediment delivery to streams between Alternatives 2 and 3 even though road construction, log haul, and road obliteration can involve considerable amounts of sediment production and transport, and Alternative 2 includes construction and use of 13.7 miles of new temporary roads and Alternative 3 involves no new road construction. It is surprising that there would be such a minimal amount of additional sediment production and transport with the construction and use of these roads, especially since most of this new road construction, log hauling, and road obliteration would occur on erosive soils, (i.e., land types 26 and 260).

Since a major difference between Alternative 2 and Alternative 3 involves the differences in the amount of new temporary road construction, it is important that the presentation of the environmental effects of roads in the EIS be estimated accurately and presented clearly. We have questions regarding the road sediment analysis in the DEIS, which are included in our more detailed comments (enclosed). We recommend improved presentation of the analysis of road sediment delivery to streams in the FEIS.

It is important that the proposed project be consistent with Total Maximum Daily Loads (TMDLs) and Water Quality Plans prepared by EPA and MDEQ to avoid further degradation of water quality impaired waters and to promote water quality improvement and restoration of full support of beneficial uses. We encourage the Helena National Forest to coordinate their proposed Warm Springs project activities with MDEQ and EPA TMDL program staff to assure consistency of proposed activities with Montana's TMDL development (contact Mr. Robert Ray of MDEQ at 406-444-5319 or Mark Kelley at 406-444-3508, and Mr. Jason Gildea of EPA at 406-457-5028). We also recommend review of the MDEQ's pamphlet, ***"Understanding the Montana TMDL Process."*** http://deq.mt.gov/wqinfo/TMDL/default.mcpx . We encourage inclusion of additional watershed restoration activities in the project to better address water quality impairments (e.g., additional road improvements, road decommissioning, grazing improvements, rehabilitation of abandoned mine sites, etc.).

In addition, we saw little discussion of monitoring and adaptive management in the DEIS. We believe monitoring should be an integral part of land management. The EPA endorses the concept of adaptive management whereby actual effects of implementation activities are determined through project monitoring (i.e., ecological and environmental effects). It is through the iterative process of setting goals and objectives, planning and carrying out projects, monitoring impacts of projects, and feeding back monitoring results to managers so they can make needed adjustments, including additional mitigation if necessary, that adaptive management works. In situations where impacts are uncertain, monitoring programs allow identification of actual impacts, so that adverse impacts may be identified and appropriately mitigated.

We recognize that there are limited resources for monitoring, but recommend that some monitoring and adaptive management be incorporated into the project and described in the FEIS.

BMP implementation monitoring should be done to assure that BMPs were properly placed on the ground. We also recommend that at least some minimal aquatic monitoring be carried out to determine actual project impacts (e.g., pre and post-harvest water quality and aquatic habitat measures for timber harvest and log hauling activities near streams in Warm Springs and McClellan Creek drainages). We recommend that the FEIS include a summary description of the monitoring and adaptive management program that will assure that resource impacts of the proposed project are identified and adequately mitigated if necessary. We encourage adequate monitoring budgets for conduct of monitoring to document BMP effectiveness and effects of road construction and timber harvests.

The EPA's further discussion and more detailed questions, comments, and concerns regarding the analysis, documentation, or potential environmental impacts of the Warm Springs Habitat Enhancement Project DEIS are included in the enclosure with this letter. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information) due to potential for adverse effects to water quality and unclear analysis of road sediment effects from proposed management activities. A copy of EPA's rating criteria is attached. We recommend additional analysis and information to fully assess and mitigate all potential impacts of the management actions.

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our comments please contact Mr. Steve Potts of my staff in Helena at 406-457-5022 or in Missoula at 406-329-3313 or via e-mail at potts.stephen@epa.gov. Thank you for your consideration.

Sincerely,

Julie A. DalSoglio
Director
Montana Office

Enclosures
cc: Larry Svoboda/Connie Collins, EPA 8EPR-N, Denver
Dean Yashan/Robert Ray/Mark Kelley, MDEQ, Helena

EPA COMMENTS ON THE WARM SPRINGS HABITAT ENHANCEMENT PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT

Brief Project Overview:

The Helena National Forest (HNF) developed the Warm Springs Habitat Enhancement Project DEIS to evaluate alternatives and disclose environmental impacts of proposed vegetation management activities to restore and promote wildlife habitat components, reduce fuels, and promote a more resilient, fire-adapted ecosystem. The project area is located on the northwest portion of the Elkhorn Mountains approximately 10 miles south of Helena, Montana. The area comprises 9,638 acres impacted by a mountain pine beetle (MPB) infestation. Approximately 466,000 ponderosa, lodgepole pine and whitebark trees have been killed in the Elkhorn Mountains (41% of the Elkhorns landscape) by the MPB since the infestation was first seen in the mountain range in 2007. Approximately 90% of pine > 5 inches diameter breast height in high hazard stands in the project area are projected to be killed by the epidemic. The purpose and need of the project is to restore a more natural and sustainable forest structure based on the fire ecology of lower elevation ponderosa pine/Douglas-fir forest, and restore important wildlife habitat. Proposed treatment areas include portions of three subwatersheds of Prickly Pear Creek: Middle Prickly Pear Creek, Warm Springs Creek, and McClellan Creek. There are several large inclusions of private land within the project boundary although project activities would occur only on National Forest System (NFS) land. The primary Forest Plan management goal for the area is to optimize moose, elk, and mule deer habitat, and maintain or improve water quality and stream stability. Three alternatives were evaluated in detail in the DEIS.

Alternative 1 is the no action alternative, which provides a baseline for comparing the magnitude of environmental effects of the action alternatives.

Alternative 2, the proposed action, would treat 4,200 acres in the 9,638-acre project area with a combination of regeneration harvest (2,059 acres), intermediate harvest (1,002 acres), and prescribed fire (1,140 acres). The regeneration and intermediate treatments would be followed by approximately 2,632 acres of post-harvest burning. In addition, approximately 1,140 acres of prescribed fire would be used as a treatment tool to accomplish primarily fuels reduction and vegetation restoration, including grasslands and aspen. Connected actions for Alternative 2 would include the construction of up to 13.7 miles of temporary roads and the reconstruction of approximately 8.8 miles of existing roads, and maintenance on 6.1 miles of log haul roads.

Alternative 3 was developed in response to the issue of road construction. Alternatives 3 would treat 3,941 acres with a combination of regeneration harvest (646 acres), intermediate harvest (427 acres), and prescribed fire (2,869 acres). The regeneration and intermediate treatments would be followed by approximately 732 acres of post-harvest burning. This alternative would not require temporary road construction, but would involve reconstructing approximately 8.8 miles of existing roads, and maintenance on 6.1 miles of log haul roads.

Comments:

1. We appreciate the inclusion of clear narrative discussions describing alternatives in the DEIS, as well as tables with information on alternatives; discussion of design elements and mitigation common to the action alternatives; and Table 2.7 comparing alternatives; and the color foldout maps of action alternatives in Chapter 2. We also appreciate inclusion of the information on treatment units, cumulative effects, and wildlife analysis in the Appendices. The narrative, tables, maps, figures and appendices facilitate improved project understanding, help define issues, and assist in evaluation of alternatives providing a clearer basis of choice among options for the decisionmaker and the public in accordance with the goals of NEPA.

2. It is stated in Chapter 3 that the proposed project activities under Alternative 2 and Alternative 3 include decommissioning of three miles of existing unclassified roads (pages 331, 333). We fully support proposed decommissioning of roads since such actions reduce short- and long-term sediment delivery from roads (page 324), although we did not see presentation of this proposed three miles of road decommissioning in the description of Alternatives 2 and 3 in Chapter 2. We recommend that all activities to be carried under the proposed project be included and clearly identified and described in the alternatives descriptions in Chapter 2.

Water Resources/Hydrology/Fisheries

3. The DEIS indicates that the sediment sources identified in the Lake Helena TMDL, include sources in the Warm Springs Creek, Middle Fork Warm Springs Creek, and North Fork Warm Springs Creek drainages, and these sources are associated with abandoned mines, livestock grazing, natural sources (e.g. wildland fire, erosive soils, beaver dams), subdivisions and land development, and agriculture, page 321). We note that the Montana Dept. of Environmental Quality (MDEQ) Clean Water Act website, http://cwaic.mt.gov/query.aspx, lists Warm Springs Creek, Middle Fork Warm Springs Creek, and North Fork Warm Springs Creek in the project area as water quality impaired under Section 303(d) of the Clean Water Act. Prickly Pear Creek, downstream from the project area, is also 303(d) listed, while McClellan Creek (waterbody ID MT41I006_200) has not been assessed by MDEQ.

   The MDEQ's 303(d) listing indicates that Warm Springs Creek (headwaters to mouth, waterbody ID MT41I006_110) does not support drinking water uses, and only partially supports aquatic life and cold water fishery uses. Probable causes of impairment are listed as sedimentation/siltation, and metals (arsenic, cadmium, lead, zinc,). Probable sources of impairment are listed as impacts from abandoned mine lands (inactive), mine tailings, unspecified unpaved road or trail, and grazing in riparian or shoreline zones.

   The Middle Fork Warm Springs Creek (headwaters to mouth, waterbody ID MT41I006_100) does not support aquatic life, cold water fishery, and drinking water

uses. Probable causes of impairment are listed as alteration in stream-side or littoral vegetative covers, sedimentation/siltation, and metals (arsenic, cadmium, copper, lead, mercury, zinc). Probable sources of impairment are listed as impacts from abandoned mine lands (inactive), mine tailings, and unspecified unpaved road or trail.

The North Fork Warm Springs Creek (headwaters to mouth, waterbody ID MT41I006_180) does not support drinking water uses, and only partially supports cold water fishery uses. Probable causes of impairment are listed as alteration in stream-side or littoral vegetative covers, sedimentation/siltation, other anthropogenic substrate alterations, and metals (arsenic, cadmium, zinc), and organic enrichment (sewage) biological indicators. Probable sources of impairment are listed as grazing in riparian or shoreline zones and natural sources.

Two segments of Prickly Pear Creek (from Spring Creek to Lump Gulch and Lump Gulch to Wylie Drive, waterbody IDs MT41I006_040 and MT41I006_040) downstream from the project area are listed due to lack of support for aquatic life, cold water fishery, and drinking water uses, and only partial support of agricultural uses. Included among the probable causes of impairment are alteration in stream-side or littoral vegetative covers, physical substrate habitat alterations, sedimentation/siltation, metals (aluminum, antimony, arsenic, cadmium, copper, lead, zinc) and temperature. Included among the probable sources of impairment are channelization, highways, roads, bridges, infrastructure (new construction), contaminated sediments, industrial point source discharge, placer mining, streambank modifications/destabilization, acid mine drainage, impacts from abandoned mine lands (inactive).

The proposed Warm Springs Habitat Enhancement project will generate sediment from road activities and vegetative treatments. Fine sediment levels in Warm Springs Creek and McClellan Creek are already stated to be above the forest averages for undisturbed drainages, indicating potential impacts to fish spawning habitat (page 337).

We believe it is important that the proposed project be consistent with the Lake Helena Total Maximum Daily Load (TMDL) prepared by EPA and MDEQ to avoid further degradation of downstream water quality impaired waters and promote water quality improvement. We encourage the Helena National Forest to coordinate their proposed Warm Springs project activities with MDEQ and EPA TMDL program staff to assure consistency of proposed activities with the State's TMDL development (contact Mr. Robert Ray of MDEQ at 406-444-5319 or Mark Kelley at 406-444-3508, and Mr. Jason Gildea of EPA at 406-457-5028). We also recommend review of the MDEQ's pamphlet, ***"Understanding the Montana TMDL Process."***
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It is EPA's policy that proposed activities in the drainages of 303(d) listed streams should not cause further degradation of water quality, and should be consistent with the State's TMDLs and water quality restoration plans. Such consistency means that if pollutants

may be generated during project activities, mitigation or restoration activities should also be included to reduce existing sources of pollution to offset or compensate for pollutants generated during project activities in accordance with the TMDL and long-term restoration plan. Recognizing uncertainties and desiring a margin of safety, such compensation should more than offset pollutants generated, resulting in overall reductions in pollution consistent with long-term water quality improvement and restoration of support of beneficial uses. Watershed restoration activities that compensate for pollutant production during management activities in watersheds of 303(d) listed streams should also be implemented within a reasonable period of time in relation to pollutant producing activities (e.g., 5 years).

We encourage inclusion of additional watershed restoration activities in the project to better address water quality impairments (e.g., additional road improvements, road decommissioning, grazing improvements, rehabilitation of abandoned mine sites, etc.). Actions often recommended to address TMDL goals to improve water quality include:

*properly maintain forest roads and implement road BMPs
*decommission forest roads that are surplus to the needs of management and access
*upgrade undersized culverts be upgraded to better accommodate large floods and/or realign culverts to provide fish passage
*minimize new road construction and particularly road stream crossings
*locate roads away from streams and riparian areas as much as possible
*use adequate BMPs be used on all timber harvest operations
*emphasize use of less disturbing harvest methods that minimize ground disturbance and erosion potential (skyline, helicopter, logging on snow or frozen ground)
*provide adequate riparian buffers
*address other existing sediment sources to streams such as unstable streambanks
*address grazing impacts in riparian areas
*address impacts from abandoned mines
*stabilize eroding streambanks

4. Vegetative treatments under Alternative 2 are projected to increase sediment delivery in Warm Springs Creek by 0.58 tons/year and in McClellan Creek by 0.05 tons/year (with probability of sediment delivery to streams approximately 2-16%, page 344). There are no projected changes in sediment delivery in the Middle Prickly Pear drainage from vegetation treatments with Alternative 2. Table 3-176 (page 342) shows a reduction in sediment delivery from roads of 0.2 tons/year for Alternative 2 when compared to no action. It is also stated that road improvements in the Warm Springs Creek drainage will reduce sediment delivery by 6.1 tons/year (page 345), which would result in an overall reduction in sediment to streams in the Warm Springs Creek watershed of 5.5 tons. It is not clear to us how the reduction in road sediment delivery to streams of 0.2 tons/year shown in Table 3-176 relates to the overall reduction in sediment delivery to Warm Springs Creek of 5.5 tons/year that is stated on page 345. This should be clarified.

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Comments:

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may be generated during project activities, mitigation or restoration activities should also be included to reduce existing sources of pollution to offset or compensate for pollutants generated during project activities in accordance with the TMDL and long-term restoration plan. Recognizing uncertainties and desiring a margin of safety, such compensation should more than offset pollutants generated, resulting in overall reductions in pollution consistent with long-term water quality improvement and restoration of support of beneficial uses. Watershed restoration activities that compensate for pollutant production during management activities in watersheds of 303(d) listed streams should also be implemented within a reasonable period of time in relation to pollutant producing activities (e.g., 5 years).

We encourage inclusion of additional watershed restoration activities in the project to better address water quality impairments (e.g., additional road improvements, road decommissioning, grazing improvements, rehabilitation of abandoned mine sites, etc.). Actions often recommended to address TMDL goals to improve water quality include:

*properly maintain forest roads and implement road BMPs
*decommission forest roads that are surplus to the needs of management and access
*upgrade undersized culverts be upgraded to better accommodate large floods and/or realign culverts to provide fish passage
*minimize new road construction and particularly road stream crossings
*locate roads away from streams and riparian areas as much as possible
*use adequate BMPs be used on all timber harvest operations
*emphasize use of less disturbing harvest methods that minimize ground disturbance and erosion potential (skyline, helicopter, logging on snow or frozen ground)
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4. Vegetative treatments under Alternative 2 are projected to increase sediment delivery in Warm Springs Creek by 0.58 tons/year and in McClellan Creek by 0.05 tons/year (with probability of sediment delivery to streams approximately 2-16%, page 344). There are no projected changes in sediment delivery in the Middle Prickly Pear drainage from vegetation treatments with Alternative 2. Table 3-176 (page 342) shows a reduction in sediment delivery from roads of 0.2 tons/year for Alternative 2 when compared to no action. It is also stated that road improvements in the Warm Springs Creek drainage will reduce sediment delivery by 6.1 tons/year (page 345), which would result in an overall reduction in sediment to streams in the Warm Springs Creek watershed of 5.5 tons. It is not clear to us how the reduction in road sediment delivery to streams of 0.2 tons/year shown in Table 3-176 relates to the overall reduction in sediment delivery to Warm Springs Creek of 5.5 tons/year that is stated on page 345. This should be clarified.

Vegetation treatments under Alternative 3 are projected to increase sediment delivery in the Warm Springs Creek drainage by approximately 0.4 tons/year (with probability of sediment delivery to streams approximately 2-14%). There are no projected changes in sediment delivery in the Middle Prickly Pear and McClellan Creek drainages from Alternative 3 vegetation treatments (page 348). Table 3-176 (page 342) shows a reduction in sediment delivery from roads of 0.4 tons/year for Alternative 3 when compared to no action.

If the information in Table 3-176 is accurate it appears that there would be a slight decrease of 0.2 tons/year increase in road sediment delivery to streams with Alternative 2, and a 0.4 tons/year decrease in road sediment delivery to streams with Alternative 3 in comparison to no action, and increases of 0.63 tons/year and 0.4 tons/year of sediment delivery to streams from vegetative treatments for Alternatives 2 and 3, respectively. As stated above, it is not clear how road improvements in the Warm Springs Creek drainage that may reduce sediment delivery by 6.1 tons/year relate to these figures. We recommend that road sediment delivery to streams be more clearly presented in the FEIS.

The Chapter 2 discussion of alternatives indicates that Alternative 2 would involve construction of 13.7 miles of temporary roads, while Alternative 3 would involve construction of no new temporary roads (Table 2-3, page 19). Both action alternatives include reconstruction of 8.8 miles of road and maintenance of 6.1 miles of log hauling roads. It is also stated that most construction of new temporary roads would occur on erosive land types (land types 26 and 260, page 360). The discussion of sediment transport from roads to streams in Chapter 3 also acknowledges that project activities under Alternative 2 could lead to increased short-term road-surface erosion from new temporary roads, reconstruction of existing roads, and hauling on existing roads (page 324).

Table 3-164 (page 326) estimates 5.6 tons/year of average annual sediment delivery from roads to streams for Alternative 2 (i.e., with 1.3 tons/year delivered to Warm Springs Creek, and 4.3 tons/year delivered to McClellan Creek, and no road sediment delivered to Middle Prickly Pear Creek). We assume these road sediment amounts in Table 3-164 include sediment delivery from existing roads as well as sediment delivery associated with construction, log haul, and obliteration of the 13.7 miles of new temporary roads proposed with Alternative 2, although this is not clearly stated. We recommend that the FEIS more clearly describe which roads and road management actions are considered in the various tables estimating road sediment delivery to streams.

Table 2-7 comparing alternatives (page 33) discloses 5.6 tons/year of road sediment delivery from Alternative 2 (i.e., with 1.3 tons/year delivered to Warm Springs Creek, 4.3 tons/year delivered to McClellan Creek, and no road sediment delivered to Middle Prickly Pear Creek); and 5.4 tons/year of road sediment delivery from Alternative 3 (i.e., with 1.2 tons/year delivered to Warm Springs Creek, 4.2 tons/year delivered to McClellan Creek, and no road sediment delivered to Middle Prickly Pear Creek). Thus,

it appears that Alternative 2 would only result in 0.2 tons/year more road sediment delivery to streams than Alternative 3 (i.e., 0.1 ton/year more to Warm Springs Creek and 0.1 ton/year more to McClellan Creek). Table 3-178 (page 344) also shows 0.14 tons/year of sediment delivery from new temporary roads, but it is not clear if this 0.14 tons/year of sediment from new temporary roads is included in the road sediment figures in Table 2-7 (i.e., Is the difference in road sediment delivery to streams between Alternative 2 and Alternative 3, 0.2 tons/year or 0.34 tons/year?).

We are surprised by the minimal difference in road sediment transport to streams with Alternative 2 vs. Alternative 3 shown in Table 2-7, since Alternative 2 involves 13.7 miles of additional construction of temporary roads, log haul on these roads for several years, and then obliteration of new temporary roads following completion of vegetation management activities, and this new road construction, log hauling, and road obliteration would occur on erosive soils, (i.e., land types 26 and 260, page 360). Road construction, log haul, and road obliteration can involve considerable amounts of sediment production and transport (page 324), and it is surprising that there would be such a minimal amount of additional sediment production and transport with such additional road work with Alternative 2.

How many new road stream crossings are associated with the 13.7 miles of new temporary roads proposed with Alternative 2? If there are 17 road sediment delivery points on the 51.8 miles of existing roads in the project area (Table 3-160), will any additional sediment delivery points be created with the 13.7 miles of new temporary roads proposed with Alternative 2?

Does the DEIS present an accurate portrayal of road sediment transport to streams and culvert impacts and overall water quality impacts of road activities associated with Alternatives 2 and 3?

Is it correct that Alternative 2 would result in only 0.2 tons/year additional road sediment transport to streams than Alternative 3, and only 0.23 tons/year additional sediment transport to streams from vegetation treatments (since there would be 0.63 tons/year and 0.4 tons/year sediment transport to streams from vegetation treatments with Alternatives 2 and 3, respectively, pages 344 and 348)? Thus, is it correct that the overall difference in sediment transport to streams between the two action alternatives would be estimated at 0.43 tons/year (i.e., 0.20 tons/year from roads and 0.23 tons/year from vegetative treatments)?

Also, Table 3-160 (page 320) identifies 51.8 miles of roads in the project area, 25.8 miles of which are stated to be "high risk roads." This table identifies 17 sediment delivery points and 8 stream crossings (culverts) on Warm Springs project area roads. Table 3-161 (page 321) indicates that 1.6 tons/year of sediment are delivered from roads to streams in the project area (i.e., 1.1 tons/year delivered to Warm Springs Creek, and 0.5 tons/year delivered to McClellan Creek, and no sediment delivered to Middle Prickly

Pear Creek); and suggests that 4.2 tons/year of sediment are delivered from roads to streams outside the project area (i.e., 0.1 tons/year delivered to Warm Springs Creek and 4.1 tons/year delivered to McClellan Creek outside the project area). Does this mean that some of the 5.6 tons/year of road sediment delivery from Alternative 2 and 5.4 tons/year of road sediment delivery from Alternative 3 occur outside the project area? How much of the 5.8 tons/year of road sediment delivery to streams for the no action alternative (Table 3-176) occurs outside the project area? We recommend that road sediment delivery to streams for alternatives be reviewed and more clearly presented in the FEIS.

5. Table 2-7 also shows the amount of high risk culverts to be identical for Alternative 2 and Alternative 3, which implies that no high risk culverts would be created with the 13.7 miles of new temporary roads in Alternative 2. Is this correct? The map of Alternative 2 at the end of Chapter 2 shows that some new temporary roads would include streams crossings? How many road stream crossings would be associated with the 13.7 miles of new temporary road in Alternative 2?

6. Tables 3-162 (page 324) and Table 3-177 (pages 344) identify segments of proposed temporary and reconstructed roads with potential water quality concerns. The road segments with potential water quality concerns total 4.3 miles of road (i.e., segments of roads N-18, N16, N23, N24 in the Warm Springs Creek drainage; road U-304 in the McClellan Creek drainage; and roads N29 and U-302 in the Middle Prickly Pear Creek drainage). We note that 1.5 miles of road N-18 is identified as a temporary road with potential water quality concerns in Table 3-177, but not in Table 3-162. It is not clear why these tables differ.

   Are the estimated 0.14 tons/year of annual sediment delivery from new temporary roads with Alternative 2 shown in Table 3-178 derived primarily from the 4.3 miles of temporary road with potential water quality concerns shown in Table 3-177?

7. EPA's primary concerns with new roads are associated with water quality impacts from road construction and road use, primarily road sediment impacts to streams. Roads are often the major anthropogenic source of sediment that adversely affect hydrology, water quality, and fisheries of streams in National Forests. Although roads can also fragment wildlife habitat and reduce wildlife security, and promote spread of weeds. Since a major difference between Alternative 2 and Alternative 3 involves the differences in the amount of new temporary road construction it is important that a clear and accurate presentation of the environmental effects of roads between the two action alternatives are presented in the FEIS.

   The proposed Warm Springs project also involves differing vegetative treatments among action alternatives depending upon availability of road access to treatment units within the project area. While we generally support avoiding and/or minimizing construction of new roads, especially construction of roads on erosive soils, and thus, favor Alternative 3 over Alternative 2, we also support conduct of vegetation management activities that

reduce fire risks and improve forest resilience to fire, insects and disease, promote more natural and sustainable forest structure, and restore and improve wildlife habitat.

Land management decisions involve environmental and resource management trade-offs (i.e., trade-offs in impacts among vegetation treatments, restoration of at risk vegetative communities, fire risk and fuels, forest health, wildlife, water quality and fisheries, air quality, weed spread, old growth, and other resource impacts). We consider it appropriate to consider the environmental and resource management trade-offs while addressing project purpose and need and the significant issues while minimizing adverse environmental impacts in an overall effort to optimize the many trade-offs.

We recommend that such optimization of trade-offs be considered for the Warm Springs Habitat Enhancement Project by evaluating fuels treatment prescriptions, treatment units and road management options and associated environmental effects in the action alternatives. It may be that some minimal new temporary road construction, where new roads have minimal effects on water quality, weed spread and wildlife habitat (avoiding road construction on erosive soils), could be justified in an effort to optimize resource management trade-offs (e.g., allowing some increased new temporary road access with Alternative 3 to enable more mechanical removal of dead and dying trees, and thus, less burning of dead and dying trees and reduced air quality impacts, as long as water quality, weed spread and wildlife habitat were not significantly adversely affected by new roads).

We do not support construction of the 4.3 miles of temporary roads with potential water quality concerns (i.e., road segments identified in Table 3-177 (page 344), including segments N18, N16, N23, N24 in the Warm Springs Creek drainage; road U-304 in the McClellan Creek drainage; and roads N29 and U-302 in the Middle Prickly Pear Creek drainage). If any new temporary roads adversely affect wildlife habitat or connectivity or security we would also recommend against their inclusion in a modified alternative. However, it may be reasonable to consider some construction of temporary roads if those roads avoided adverse water quality, wildlife and invasive weed effects, and allowed more effective or comprehensive vegetative treatments and improved vegetative and wildlife habitat restoration. Although we do have significant concerns about constructing new temporary roads on erosive soils (page 360), and recommend avoiding road construction on erosive soils.

The Helena NF, therefore, may want to consider development of a modified preferred alternative to optimize the environmental and resource management trade-offs while addressing project purpose and need and the significant issues. Additional alternative evaluation in the FEIS may also better explain to the public the trade-offs involved in making land management decisions, and may lead to improved public acceptance of decisions. We note of course that the Forest Service will need to evaluate and analyze the impacts of any new modified alternative, and display those impacts in the FEIS. In general desirable features we consider worthy of including in a modified preferred alternative include:

- reduce fuel loadings in high fire risk areas, particularly urban interface areas, while retaining large healthy trees of desirable species and/or species in decline (Ponderosa pine, whitebark pine, aspen), while promoting more natural and sustainable forest structure, and protecting other resource values (e.g., wildlife habitat and security, wildlife connectivity and travel, air and water quality, old growth, control of noxious weeds);

- minimize new road construction and reconstruction (and locate new roads on uplands away from streams where they have minimal aquatic impacts, and avoid road construction on erosive soils);

- maximize improvements to road BMPs, road drainage, and sediment/erosion control on existing roads remaining on the transportation system, replacing undersized culverts and culverts that block fish passage (except where such blockage is desired to protect native fish populations);

- maximizing decommissioning of roads and removal of road stream crossings to reduce existing road densities, while allowing for necessary management and reasonable public access, since improved watershed conditions, fisheries, and wildlife habitat and security are associated with reduced road densities;

- avoid excessive water yield, erosion and sediment transport, and maximize fish and watershed improvement and recovery of impaired waters (i.e., road obliteration & improvement, stream stabilization, aquatic habitat improvement, and revegetation);

- restrict motorized vehicle access, and educate and enforce/police on off-road vehicle (ORV) use to protect against erosion & transport of sediment to streams, spread of noxious weeds, and degradation of habitat by ORV use in wetlands and other environmentally sensitive areas.

8. The DEIS states that four of the eight culverts located within the project boundary had inadequate capacity to pass the 25-year-return-interval flow event (page 330), and that these undersized culverts can affect the stream's ability to convey water and sediment. Will these undersized culverts be removed or replaced with adequately sized culverts? If not, we recommend that this be done. Will any culverts be removed with the proposed decommissioning of three miles of unclassified roads?

   Table 3-160 (page 320) indicates that there are 8 culverts on the 51.8 miles of existing roads in the project area (i.e., 3 culverts on roads in the Warm Springs Creek drainage and 5 culverts on roads in the McClellan Creek drainage). However, Table 3-172 (page 336) indicates that there are 19 culverts on the 51.8 miles of existing roads in the project area (i.e., 5 culverts on roads in the Warm Springs Creek drainage and 14 culverts on roads in the McClellan Creek drainage). We recommend that this information be

reviewed and consistent information on road culverts be presented in the FEIS.

Table 3-160 also identifies 25.8 miles of "high risk roads," in the project area, and 17 sediment delivery points on area roads. Five culverts in the Warm Springs Creek drainage are stated to pose risk of chronic sediment inputs and potential catastrophic effects if they fail during floods (page 339). Eleven of fourteen culverts in the McClellan Creek drainage are stated to have potential for failure during floods (page 339). Will anything be done to address the 17 road sediment delivery points noted in this table, or reduce sediment delivery potential on the 25.8 miles of high risk roads, or address the 16 high risk culverts in the Warm Springs Creek and McClellan Creek drainages? We recommend that such road related water quality problems be addressed.

9. We fully support the proposed decommissioning of three miles of unclassified forest roads. We generally recommend inclusion of watershed restoration activities in vegetation management projects (e.g., road decommissioning, road storage, grazing improvements, mine rehabilitation, etc.) as much as possible to reduce pollutant delivery to streams, address water quality impairments, and improve watershed conditions at the same time forest vegetative conditions are being improved. Reduction in sediment delivery from such activities can help offset sediment increases associated with road work and vegetative treatments. We, therefore, encourage consideration of additional road decommissioning opportunities within the Warm Springs project area, particularly roads closer to streams with reduction in road stream crossings. Closures of roads near streams with many stream crossings are more likely to have water quality benefits than closure/decommissioning of roads on upper slopes and ridges. Closures of high risk roads that are difficult to maintain are also recommended. Are there additional opportunities for road decommissioning within the project area?

   The DEIS states that the project area has approximately 6.1 miles of unclassified roads that are not managed as part of the Forest Transportation System, and that most of these roads have been partially decommissioned or are overgrown with vegetation and do not appear to be sources of sediment under existing conditions (page 321). Apparently 3.1 miles of these unclassified roads will be improved and utilized as access roads with Alternative 2 (page 324), and then will be decommissioned along with other proposed new temporary roads at project completion. Will the remaining 3 miles of unclassified roads on NFS lands be obliterated or stabilized in any way (e.g., culverts removed)?

   We also want to note that there is often a relationship between higher road density and increased forest use and increased human caused fire occurrences. Reduction in road density, therefore, may also reduce risks of human caused fires, which could be important in an area with high fuels/fire risk and/or wildland/urban interface issues. Reduction in road density is also likely to be beneficial to wildlife, especially since the area is stated to have high road densities (page 196).

10. Does the Helena National Forest carry out routine road BMP audits or inspections of road conditions on Forest roads? We encourage routine conduct of inspections and evaluations to identify conditions on roads and other anthropogenic sediment sources that may cause or contribute to sediment delivery and stream impairment, and to include activities in the project to correct as many of these conditions and sources as possible. Will the 51.8 miles of roads (Table 3-160) in the project area be adequately maintained, especially the 25.8 miles of roads with high risk of sediment delivery to streams? Do projections of project road sediment reductions rely upon assumptions that roads are not maintained in the no action alternative, but receive maintenance in the action alternatives?

    Improperly designed and poorly located and/or maintained roads can modify natural drainage networks and accelerate erosional processes resulting in increased stream sedimentation, degradation of aquatic habitats, and altered channel morphology. EPA fully supports conduct of road maintenance and BMP and drainage improvements to forest roads, and decommissioning of roads that cannot be properly maintained, and reductions in road density to improve watershed conditions. Road system improvement measures are critical to protecting aquatic health (e.g., removing and replacing culverts, installing drainage dips or surface water deflectors, armoring drainage structures, grading and replacement of aggregate to reinforce wet surface areas, ditch construction and cleaning). Our general recommendations regarding roads for your information are as follows:

    * minimize road construction and reduce road density as much as possible to reduce potential adverse effects to watersheds;

    * locate roads in uplands, away from streams and riparian areas as much as possible;

    * minimize the number of road stream crossings;

    * locate roads away from steep slopes or erosive soils and areas of mass failure;

    * stabilize cut and fill slopes;

    * provide for adequate road drainage and control of surface erosion with measures such as adequate numbers of waterbars, maintaining crowns on roads, adequate numbers of rolling dips and ditch relief culverts to promote drainage off roads avoid drainage or along roads and avoid interception and routing sediment to streams;

    * consider road effects on stream structure and seasonal and spawning habitats;

    * allow for adequate large woody debris recruitment to streams and riparian buffers near streams;

* properly size culverts to handle flood events, pass bedload and woody debris, and reduce potential for washout;

* replace undersized culverts and adjust culverts which are not properly aligned or which present fish passage problems and/or serve as barriers to fish migration;

* use bridges or open bottom culverts that simulate stream grade and substrate and that provide adequate capacity for flood flows, bedload and woody debris where needed to minimize adverse fisheries effects of road stream crossings.

Blading of unpaved roads in a manner that contributes to road erosion and sediment transport to streams and wetlands should be avoided. It is important that management direction assures that road maintenance (e.g., blading) be focused on reducing road surface erosion and sediment delivery from roads to area streams. Practices of expediently sidecasting graded material over the shoulder and widening shoulders and snow plowing can have adverse effects upon streams, wetlands, and riparian areas that are adjacent to roads. Road use during spring breakup conditions should also be avoided. We encourage closing roads to log haul during spring break up to reduce rutting of roads that increase road erosion and sediment delivery, and graveling of haul roads. Snow plowing of roads later in winter for log haul should also be avoided to limit runoff created road ruts during late winter thaws that increase road erosion (i.e., ruts channel road runoff along roads).

Forest Service Region 1 provides training for operators of road graders regarding conduct of road maintenance in a manner that protects streams and wetlands, (i.e., Gravel Roads Back to the Basics). If there are road maintenance needs on unpaved roads adjacent to streams and wetlands we encourage utilization of such training (contact Donna Sheehy, FS R1 Transportation Management Engineer, at 406-329-3312).

We also note that there are training videos available from the Forest Service San Dimas Technology and Development Center for use by the Forest Service and its contractors (e.g., "Forest Roads and the Environment"-an overview of how maintenance can affect watershed condition and fish habitat; "Reading the Traveled Way" -how road conditions create problems and how to identify effective treatments; "Reading Beyond the Traveled Way"-explains considerations of roads vs. natural landscape functions and how to design maintenance to minimize road impacts; "Smoothing and Reshaping the Traveled Way"-step by step process for smoothing and reshaping a road while maintaining crowns and other road slopes; and "Maintaining the Ditch and Surface Cross Drains"-instructions for constructing and maintaining ditches, culverts and surface cross drains).

11. Alternative 2 proposes 3,060 acres of timber harvest vs. 1,072 acres of timber harvest with Alternative (Table 2-1, page 18). Will additional revenues associated with increased timber harvest under Alternative 2 allow for conduct of any additional watershed restoration activities (e.g., via Stewardship contract timber revenues)?

Collection of adequate timber revenues to carry out additional watershed restoration activities may be a factor to consider for optimizing trade-offs. Although we also believe it is important to consider and weigh potential adverse effects of timber harvest against benefits under a Stewardship contract, so that collection of timber revenues does not override other resource and environmental considerations.

Grazing

12. The DEIS indicates that grazing in riparian areas and cattle trailing along streams are among the activities that contribute to elevated sediment levels in streams (page 330). Grazing in riparian areas are among the probable sources of water quality impairment noted by MDEQ in Warm Springs Creek. Three reaches of Warm Springs Creek are stated to be functioning-at-risk and one reach non-functioning (page 321). One reach of McClellan Creek is functioning-at-risk and two reaches are non-functioning.

    Several grazing allotments are mentioned in Appendix B which appear to be on Helena NF lands within the project area, and are impacting riparian and wetland conditions, and water quality and fish habitat with trampling and grazing adjacent to streams. We are pleased that fences would be protected during proposed treatment operations (page 27), and that grazing would be deferred for 1-2 years following vegetative treatments to minimize cumulative effects of grazing and vegetative treatments (page 21). We recommend that the status and condition of active grazing allotments on National Forest System (NFS) lands within the Warm Springs project area be more fully or clearly described. If grazing on NFS lands contributes to water quality degradation within the project area, we recommend that improvements in grazing practices be incorporated into the proposed project to further offset sediment effects of proposed treatments and road activities (e.g., use of monitoring and adaptive management, enhancing herding, off-stream watering, salting, fencing and other range improvements or practices necessary to reduce water quality impacts).

Abandoned Mine Sites

13. It is stated that there are 15 mine-related features in the project area located within treatment units associated with Alternative 2, and that additionally, two mine sites are located near haul roads that are to be reconstructed or new temporary roads that are to be constructed (page 389). There are 14 mine-related features located within treatment units associated with Alternative 3, and additional two mine sites are located near haul roads that are to be reconstructed with Alternative 3.

    We recommend that disturbances of mine sites be avoided to minimize risk of mobilizing sediments in mining areas or mine tailings. We also support and encourage rehabilitation of abandoned mine sites on NFS lands as much as possible.

Wetlands and Riparian Areas

14. EPA considers the protection, improvement, and restoration of wetlands and riparian areas to be a high priority. Wetlands and riparian areas increase landscape and species diversity, and are critical to the protection of designated water uses. Executive Order 11990 requires that all Federal Agencies protect wetlands. In addition national wetlands policy has established an interim goal of **No Overall Net Loss of the Nation's remaining wetlands**, and a long-term goal of increasing quantity and quality of the Nation's wetlands resource base.

    The DEIS states that there are no known wetlands in the project area, although wetlands are known to exist in the vicinity of treatment units, and may exist within units as well (page 322). It is important that wetlands and riparian areas be properly managed to maintain and restore the health of watersheds and aquatic resources to sustain aquatic and terrestrial species and provide water of sufficient quality and quantity to support beneficial uses. Adequate riparian vegetation in stream-side areas must be maintained to stabilize streambanks and stream channels during floods and other periodic high flow events. Proper management of riparian areas maintains water quality, including water temperature, and hydrologic processes; maintains naturally functioning riparian vegetation communities; and supports habitats for riparian- or wetland-dependent species.

    We encourage avoidance of timber harvest in wetland and riparian areas, and no equipment operation or road construction in wetland areas. We recommend that harvest units be reviewed in the field to determine the presence of wetlands and identify wetlands on the Sale Area Map and be flagged on the ground so that timber contractors will be able to avoid them. Wetland impacts should be avoided, and then minimized, to the maximum extent practicable, and if wetland impacts occur, then impacts should be compensated for through wetland restoration, creation, or enhancement.

    We are pleased that the DEIS states that wetlands, seeps and springs are protected from ground disturbance in the design criteria for this project (page 310); and that if wetlands are identified during project implementation they would be marked and avoided by mechanical equipment, and that there would be no operation of mechanical equipment in riparian areas, and hand-felling in the SMZ would be minimized (page 323).

Soils

15. The DEIS states that there are eight land types in the project area with sensitive soils (i.e., land types 47B, 390, 26, 36, 36A, 36B, 260, and 360 with greater vulnerability to, or at higher risk for erosion, compaction, or mass wasting, page 353). It is also stated that the 13.7 miles of new temporary roads proposed under Alternative 2 (comprising approximately 43 acres), would occur mostly on sensitive land types 26 and 260 (page 360). These land types are characterized by granitic soils at risk for accelerated surface erosion in the absence of sufficient groundcover (page 353), and are also vulnerable to

detrimental levels of compaction due to their medium textured sandy loam surface layers, and susceptible to displacement and high burn severity as a result of their thin concentrations of surface organic matter.

We generally recommend avoidance of road construction in areas with high risk of sediment production or erosion potential. Since most of the 13.7 miles of proposed new temporary roads in Alternative 2 would involve construction on erosive soils, it is important that the resource management trade-offs associated with evaluation of alternatives carefully consider these potential adverse effects of road construction with Alternative 2.

16. We are pleased that no treatments in either action alternative are proposed on land type 36B that contains wet areas and granitic soils that are vulnerable to rutting, compaction, and surface erosion (page 353).

17. We are also pleased that under Alternative 3 all units with associated mitigation are anticipated to comply with Region 1 Soil Quality standards (page 365).

18. The DEIS states that under Alternative 2 units 4, 11, 13, 15, 17, 27, 28, 29, 33, 34, 35, 42, 45, 46, 58, 60, 62 and 63 may not meet Region 1 soil quality standards (page 366), and that units that exceed the standard should be evaluated after timber harvest completion to determine the detrimental soil disturbance levels. This evaluation would determine whether or not the subsequent prescribed burning would exceed Region 1 Soil Quality Standards. Thirteen of the eighteen units listed above are predicted to be within 1% of meeting Regional soil quality standards. It is further stated that the likelihood of being able to implement both ground based harvest and prescribed burning is high for these thirteen units (based on professional experience).

    Table 3-187 (page 361) shows that none of the Alternative 2 treatment units would exceed the FS Region 1, 15% detrimental soil disturbance standard if winter logging is incorporated with burning; and it is stated all units anticipated to exceed Region 1 soil quality standards would be well below 15% detrimental soil disturbance if logged under winter conditions rather than summer conditions (page 366).

    We believe it is important that FS Regional Soil Quality Standard be met, and thus, recommend that no treatment units be included in the preferred alternative that do not include appropriate logging methods (winter logging) or mitigation measures to meet the soil standards. We support use of adequate measures to reduce erosion to assure that all of the harvest units, particularly units with sensitive soils or on landtypes with greater vulnerability of erosion and mass wasting include adequate mitigation measures and/or less damaging harvest methods to avoid erosion and other detrimental soil impacts and/or higher levels of sediment production and transport. We recommend use of timber harvest/yarding methods that reduce ground disturbance and sediment production and transport risks when harvesting timber on erosive soils or steep slopes to reduce adverse

effects to soil and water quality (skyline cable, winter logging, etc.).

We also generally suggest mitigation measures such as use of existing skid trails wherever possible; restrictions on skidding with tracked machinery in sensitive areas; using slash mats to protect soils; constructing water bars; creating brush sediment traps; adding slash to skid trail surfaces after recontouring and ripping; seeding/planting of forbs, grasses or shrubs to reduce soil erosion and hasten recovery; as well as recontouring, slashing and seeding of temporary roads and log landing areas following use to reduce erosion and adverse impacts to soils.

19. DEIS statements suggest that field soil monitoring would be carried out after timber harvests are completed to determine detrimental soil disturbance levels (page 366), however, little specific information is provided regarding proposed field soil monitoring that would be carried out to document and verify that Regional Soil Quality Standards are met. We believe field soil monitoring should be carried out to verify that the Region 1 Soil Quality thresholds are not exceeded, particularly on sensitive land types, and that a brief summary of this soil monitoring be disclosed in the FEIS. {See Region 1 Soil Monitoring Protocol (DRAFT - The 2007 Northern Region Soil Quality Monitoring Protocol, 6-15-07, Version 3.1) or more recent versions for soil monitoring guidance.}

20. We are pleased that coarse woody debris would be retained (5-12 tons per acre in warm dry forest habitat types; 10-18 tons/acres in other forest types) in harvest units to help maintain soil productivity (page 27). It is important that adequate amount of woody debris is retained on site to maintain soil productivity.

Monitoring

21. We believe monitoring should be an integral part of land management. The EPA endorses the concept of adaptive management whereby effects of implementation activities are determined through monitoring (i.e., ecological and environmental effects). It is through the iterative process of setting goals and objectives, planning and carrying out projects, monitoring impacts of projects, and feeding back monitoring results to managers so they can make needed adjustments, that adaptive management works. In situations where impacts are uncertain, monitoring programs allow identification of actual impacts, so that adverse impacts may be identified and appropriately mitigated.

    The EPA particularly believes that water quality/aquatics monitoring is a necessary and crucial element in identifying and understanding the consequences of one's actions, and for determining effectiveness in BMPs in protecting water quality. The achievement of water quality standards for non-point source activities occurs through the implementation of BMPs. Although BMPs are designed to protect water quality, they need to be monitored to verify their effectiveness. If found ineffective, BMPs need to be revised, and impacts mitigated. We encourage adequate monitoring budgets for conduct of aquatic monitoring to document BMP effectiveness and long-term water quality

improvements associated with road BMP work and road decommissioning.

We generally recommend that aquatic monitoring be included in projects, using aquatic monitoring parameters such as channel cross-sections, bank stability, width/depth ratios, riffle stability index, pools, large woody debris, fine sediment, pebble counts, macroinvertebrates, etc,. Biological monitoring can be particularly helpful, since monitoring of the aquatic biological community integrates the effects of pollutant stressors over time and, thus, provides a more holistic measure of impacts than grab samples.

We did not see much discussion of project monitoring, including aquatic monitoring, in the DEIS. We recognize that there are limited resources for monitoring, but recommend that some monitoring and adaptive management be incorporated into the project and described in the FEIS. BMP implementation monitoring should be carried out to assure that BMPs were properly placed on the ground. We also recommend that at least some minimal aquatic monitoring be carried out to determine actual project impacts (e.g., pre and post-harvest water quality and aquatic habitat measures for timber harvest and log hauling activities near streams in Warm Springs and McClellan Creek drainages). We encourage adequate monitoring budgets for conduct of monitoring to document BMP effectiveness and effects of road construction and timber harvests.

We note that there may be PACFISH/INFISH Biological Opinion (PIBO) monitoring sites in the project area that could be used to help evaluate actual project effects (http://www.fs.fed.us/biology/fishecology/emp/index.html). If there are PIBO monitoring sites in the area they may be considered for their potential to evaluate project effects.

Air Quality

22. The action alternatives include prescribed burning on 1,140 acres with Alternative 2 and burning on 2,869 acres with Alternative 3 (Table 2-1, pages 18). The EPA supports judicious and well planned use of prescribed fire to reduce hazardous fuels and restore fire to forest ecosystems. The EPA also recognizes and supports the national goal reduce the risk of uncontrolled wildfire in wildland-urban interface areas.

    Although as you know smoke from fire contains air pollutants, including tiny particulates (PM10 and PM2.5) which can cause health problems, especially for people suffering from respiratory illnesses such as asthma or emphysema, or heart problems. PM10 and PM2.5 particles are both of concern, although PM2.5 is greater concern because it can penetrate into the lungs whereas larger particles (included in the coarse fraction of PM10) deposit in the upper respiratory tract. Particulate concentrations that exceed health standards have been measured downwind from prescribed burns. The DEIS states that air mixing and dispersal in the project area is robust (page 411), but it also states that temperature inversions, which trap smoke and reduce smoke dispersal are common year-

round in the project area (page 408). It is important, therefore, that air quality impacts from proposed prescribed burning be adequately disclosed and mitigated.

Prescribed fire could also have impacts on Class II areas and Federally-designated Class I areas. Smoke can reduce visibility and diminish the appreciation of scenic vistas (e.g., Class I, Gates of the Mountains Wilderness Area). We generally recommend that an EIS include a map showing the relative locations of Class I areas (and any PM-10 and PM2.5 non-attainment areas that may be affected) relative to areas of prescribed burns. The EIS should also show prevailing wind directions, and characterize any air quality problems within the analysis area in terms of the source of air pollution, frequency, degree of severity, and describe effects of proposed prescribed burning on air quality.

The EPA gives special consideration to smoke and high particulates attributed to fires managed for resource benefits if the State has certified to EPA that it is implementing a Smoke Management Program with the basic elements. We generally recommend that the EIS discuss the *Interim Air Quality Policy on Wildland and Prescribed Fires*, and disclose how the Federal Land Manager is participating in a certified Smoke Management Program, and describe how prescribed burns will be in line with the State certified Smoke Management Program A copy of the *Interim Air Quality Policy* can be found at: http://www.epa.gov/ttn/oarpg/t1/memoranda/firefnl.pdf .

The *Interim Air Quality Policy* was prepared in an effort to integrate the public policy goals of allowing fire to function in its natural role in maintaining healthy ecosystems and protecting public health and welfare by mitigating the impacts of air pollutant emissions on air quality and visibility. It is Federal policy which reconciles the competing needs to conduct prescribed fires while at the same time to maintain clean air to protect public health. It is interim only in that it does not yet address agricultural burning nor visibility/regional haze. It is not interim with regard to how States, Tribes, and Federal land managers should address smoke from prescribed fires.

23. The Chapter 2 discussion of alternatives indicates that there would be more acres of prescribed fire under Alternative 3 than Alternative 2 (page 20). Table 2-1 (page 18) shows 1,729 more acres of prescribed burning with Alternative 3 when compared to Alternative 3. The air quality analysis in Chapter 3 indicates that while Alternative 3 would include more acres of prescribed burning, only a certain number of acres could be burned per day under either alternative, therefore, the daily PM2.5 emissions of Alternatives 2 and 3 are equal (page 412). Although the DEIS acknowledges that Alternative 3 would include more burn days than Alternative 2 (page 410). The daily air quality effects of action alternatives are described together in the DEIS (page 410). Table 2-7 comparing alternatives, however, indicates identical air quality impacts for both of these action alternatives (i.e., PM 2.5 emission <29.8 ug/m^3 in spring; < 27.2 ug/m^3 in fall; and <24.2 ug/m^3 for all piles for both Alternatives 2 and 3).

The DEIS states that projected 24-hour PM2.5 emissions are below 29.8 ug/m^3 and below 27.2 ug/m^3 at all distances greater than 1.0 mile from the burns for the prescribed burning in spring and fall, respectively, for both Alternatives 2 and 3 (page 412). Projected 24-hour PM2.5 emissions are below 24.2 ug/m^3 at all distances greater than 1.0 mile for the pile burns, which would most likely occur in winter (24-hour average PM2.5 standard is 35 ug/$m^{3)}$. No cumulative effects are anticipated from implementing Alternative 2 and Alternative 3 due to the short-term and non-cumulative nature of air quality effects in the project area.

The burning would be completed over a three to eight year period in the spring or fall for prescribed burns and winter for pile burns. Spring burns would likely occur during a period of more wind dispersion than fall due to longer spring daytime length and higher mixing heights. The Warm Springs Project burns would be coordinated with the Montana/Idaho State Airshed Group, and specific restrictions would be implemented when smoke accumulation is probable due to inadequate dispersion. The smoke plumes would likely disperse to the north and northeast. PM2.5 from burns would not likely be measurable in Helena or East Helena since the distance to those cities is greater than five miles. Some concentrations of smoke might occur near residences in Montana City, a small community located approximately two miles north of the project area. This would most likely occur during the burn smoldering phase where smoke could be trapped by nighttime inversions.

The air quality analysis concludes that smoke concentrations are expected to be within National Ambient Air Quality Standards (NAAQS) and state of Montana air quality standards (outside of the minimum ambient distances), and that implementation of either of the action alternatives would be in compliance with Forest Plan standards to protect air quality by not causing or contributing to any exceedences or violations of Federal or state standards and by cooperating with the Montana Air Quality Bureau in the Prevention of Significant Deterioration (PSD) program and State Implementation Plan (SIP) (page 412).

We appreciate the inclusion of an air quality impact analysis of proposed prescribed burns in the DEIS. We note, however, that smoke management programs depend on favorable meteorological conditions to disperse smoke. Despite best efforts to predict favorable conditions the weather can change causing smoke not to disperse as intended. Therefore, the EIS should acknowledge that there may be unintentional ground-level impacts from smoke and never presume to the public that there will be no air quality impacts. It is important to disclose that even though prescribed burns will be scheduled during periods of favorable meteorological conditions for smoke dispersal, the weather can change causing smoke not to disperse as intended. This can be especially problematic for smoldering pile burns when a period of poor ventilation follows a good ventilation day. Also, if there is potential for smoke to drift into populated areas there should be public notification prior to burns so sensitive people (e.g., people suffering from respiratory illnesses such as asthma or emphysema, or heart problems) can plan

accordingly.

We are pleased that the DEIS states that within minimum ambient distances the public would be warned about elevated smoke concentrations through multiple avenues such as news releases, signs, and personal contacts (page 410); and that prior to burning the location, timing, and possible smoke effects would be disclosed in the local newspaper (page 22). The DEIS states that the minimum ambient distance is the spacing from the burn to which the public would have access. We recommend that the website for the Montana/Idaho State Airshed Group, http://www.smokemu.org/ be displayed in the FEIS, since it may be of interest to the public.

Noxious Weeds

24. Weeds are a great threat to biodiversity and can often out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife. Noxious weeds tend to gain a foothold where there is disturbance in the ecosystem, such as road building, logging, livestock grazing or fire activities. We are pleased that the proposed project includes activities to control and manage spread of weeds (pages 25, 26, 294).

    EPA supports integrated weed management, and recommends weed control measures at the earliest stage of invasion to reduce impacts to native plant communities. Weed prevention is the most cost-effective way to manage and control weeds by avoiding new infestations and spread of weeds, and thus, avoiding the need for subsequent weed treatments. We also encourage tracking of weed infestations, control actions, and effectiveness of control actions in a Forest-level weed database.

    EPA is pleased to see discussion in the DEIS about potential effects of herbicide use on native plant diversity (page 295). It is important to also note potential effects of herbicide use on water quality. Water contamination concerns associated with herbicide use should be evaluated and mitigated. All efforts should be made to avoid movement or transport of herbicides into surface waters that could adversely affect fisheries or other water uses. Montana's Water Quality Standards include a general narrative standard requiring surface waters to *be free from substances that create concentrations which are toxic or harmful to aquatic life*. Herbicide drift into streams and wetlands could adversely affect aquatic life and wetland functions such as food chain support and habitat for wetland species.

    Some suggestions to reduce potential water quality and fisheries effects from herbicide spraying are to assure that applicators: 1) are certified and fully trained and equipped with the and appropriate personal protective equipment; 2) apply herbicides according to the label; and 3) herbicide applicators should take precautions during spraying (e.g., applying herbicide only after careful review of weather reports to ensure minimal likelihood of rainfall within 24 hours of spraying; special precautions adjacent to the stream to reduce runoff potential; etc.; 4) no herbicide spraying will occur in streams and wetlands or other

aquatic areas (seeps, springs, etc,); 5) streams and wetlands in any area to be sprayed be identified and flagged on the ground to assure that herbicide applicators are aware of the location of wetlands, and thus, can avoid spraying in or near wetlands; 6) use treatment methods that target individual noxious weed plants in riparian and wetland areas (depending on the targeted weed species, manual control or hand pulling may be one of the best options for weed control within riparian/wetland areas or close to water).

We also recommend that road ditches leading to intermittent and perennial streams be flagged as no-spray zones and especially not sprayed with picloram based herbicides. Herbicides should be applied at the lowest rate effective in meeting weed control objectives and according to guidelines for protecting public health and the environment.

In addition we recommend that weed treatments be coordinated with the Forest botanist to assure protection to sensitive plants, and coordinated with fisheries biologists and wildlife biologists to assure that sensitive fisheries and wildlife habitat areas are protected. Please also note that there may be additional pesticide use limitations that set forth geographically specific requirements for the protection of endangered or threatened species and their designated critical habitat. This information can be found at http://www.epa.gov/espp/bulletins.htm . You may also want to consider use of a more selective herbicide (clopyralid) for use in conifer associated communities to reduce impacts on non-target vegetation. We also note that spotted knapweed, which is a prevalent noxious weed species in western Montana, is non-rhizomatous and should be relatively easy to control with lower rates of the most selective low toxicity herbicides.

For your information, the website for EPA information regarding pesticides and herbicides is http://www.epa.gov/pesticides/ . The National Pesticide Telecommunication Network (NPTN) website at http://nptn.orst.edu/tech.htm which operates under a cooperative agreement with EPA and Oregon State University and has a wealth of information on toxicity, mobility, environmental fate on pesticides that may be helpful (phone number 800-858-7378).

25. Weed seeds are often transported by wind and water, animal fur, feathers and feces, but primarily by people. The greatest vector for spread of weeds is through motorized vehicles-cars, trucks, ATVs, motorcycles, and even snowmobiles. Weed seeds are often caught on the vehicle undercarriage in mud and released on the Forest. A single vehicle driven several feet through a knapweed site can acquire up to 2,000 seeds, 200 of which may still be attached after 10 miles of driving (Montana Knapweeds: Identification, Biology and Management, MSU Extension Service).

We believe an effective noxious weed control program should consider restrictions on motorized uses, particularly off-road uses, where necessary. Off-road vehicles travel off-trail, disturbing soil, creating weed seedbeds, and dispersing seeds widely. Weed seed dispersal from non-motorized travel is of lesser concern because of fewer places to collect/transport seed, and the dispersal rate and distances along trails are less with non-

motorized travel. Restrictions on motorized uses may also be needed after burning and harvest activities until native vegetation is reestablished in the disturbed areas to reduce potential for weed infestation of the disturbed sites.

Climate Change

26. Thank you for including discussion of climate change in the DEIS (pages 55-56, 199-200). We agree that changes in climate, particularly toward hotter and drier conditions, may increase the frequency of outbreaks and allow bark beetles to move northward or higher in elevation into other ranges of their hosts or the ranges of new potential hosts (page 200). Climate change may increase stress to ponderosa pine seedlings, and affect the ability of ponderosa pine and other species to prosper through time, and may have added to stress factors leading or affecting the current MPB epidemic.

    Climate change appears to be a factor driving at least some bark beetle outbreaks. Temperature influences everything in a bark beetle's life, from the number of eggs laid by a single female beetle, to the beetles' ability to disperse to new host trees, to individuals' over-winter survival and developmental timing. Elevated temperatures associated with climate change, particularly when there are consecutive warm years, can speed up reproductive cycles and reduce cold-induced mortality. Shifts in precipitation patterns and associated drought can also influence bark beetle outbreak dynamics by weakening trees and making them more susceptible to bark beetle attacks, (http://www.fs.fed.us/ccrc/topics/bark-beetles.shtml).

    Also as the DEIS notes, wildland fire frequency has increased in the west and altered fire regimes over the last twenty years due to climate change. More frequent fires are currently burning for extended periods of time (average of 5 weeks) compared to the infrequent fires lasting less than one week that were common prior to the mid-1980s (page 55). Large wildfire activity increased in the 1980s, with higher large fire frequency, longer wildfire durations, and longer wildfire seasons; with the greatest increases occurring in mid-elevation (page 56). We appreciate inclusion of such information in the NEPA document since it may promote improved public understanding regarding the impact climate change may have on forest ecosystems and forest management.

Forest Vegetation

27. The DEIS Chapter 3 discussion of forest vegetation provides valuable information regarding forest structure and composition, disturbance, insects and pathogens, fire regimes, fuels and fire risks. EPA supports vegetative treatments to reduce fire risks, susceptibility to insect and disease agents, improving forest structural diversity and ecological integrity. We also support the need to restore fire as a natural disturbance process, and to help address competing and unwanted vegetation and fuel loads and fire risk and forest health.

We generally favor understory thinning from below, slashing and prescribed fire to address fuels build-up with reduced ecological impacts. We also favor retention of the larger more vigorous trees, particularly trees of desirable tree species whose overall composition may be in decline (e.g., Ponderosa pine, aspen, whitebark pine). The larger trees are generally long-lived and fire resistant, and provide important wildlife habitat. Harvest of many live mature trees could potentially increase fire risk, as well as reduce wildlife habitat. If the forest canopy is opened too much by removal of large fire resistant trees it may promote more vigorous growth of underbrush and small diameter trees that would increase fuels and fire risk in subsequent years, contrary to the fire risk reduction purpose and need. It would be helpful if the extent of proposed harvest of large healthy trees of desired species in Warm Springs Project harvests were more clearly identified in the FEIS.

28. EPA supports protection of old growth habitats and maintenance or restoration of native, late-seral overstory trees and forest composition and structure within ranges of historic natural variability. Old growth stands are ecologically diverse and provide good breeding and feeding habitat for many bird and animal species, which have a preference or dependence on old growth (e.g., barred owl, great gray owl, pileated woodpecker). Much old growth habitat has already been lost, and it is important to prevent continued loss of old growth habitat and promote long-term sustainability of old growth stands, and restore where possible the geographic extent and connectivity of old growth (e.g., using passive and active management-such as avoiding harvest of old growth trees, leaving healthy larger and older seral species trees, thinning and underburning to reduce fuel loads and ladder fuels in old growth while enhancing old growth characteristics). Often lands outside the forest boundary have not been managed for the late-seral or old growth component, so National Forest lands may need to contribute more to the late-seral component to compensate for the loss of this component on other land ownerships within an ecoregion.

    The DEIS states that no treatments are proposed in old growth, but that old growth stands are at risk due to high fuel loadings (page 259). For your information, EPA does not oppose treatments in old growth such as thinning of understory or under burning to reduce fuel loads and ladder fuels in old growth, since such treatments may lessen the threat of stand removal by a wildfire and reduce competition with other vegetation to promote larger diameter trees. Careful prescribed burning in old growth stands can reduce fuel loads and fire risk in such stands, and thus, may promote long-term protection and sustainability of old growth stands.

Wildlife

29. The DEIS indicates that threatened and/or endangered (T&E) species such as the gray wolf, grizzly bear, and Canada lynx are not found in the project area (page 75), and there

would be no effect to listed species (page 198). If it is found that T&E species do occupy the project area, and that the finally selected project alternative may adversely affect any T&E the final EIS should include the associated U.S. Fish & Wildlife Service (USFWS) Biological Opinion or formal concurrence for the following reasons:

(a) NEPA requires public involvement and full disclosure of all issues upon which a decision is to be made;

(b) The CEQ Regulations for Implementing the Procedural Provisions of NEPA strongly encourage the integration of NEPA requirements with other environmental review and consultation requirements so that all such procedures run concurrently rather than consecutively (40 CFR 1500.2(c) and 1502.25); and

(c) The Endangered Species Act (ESA) consultation process can result in the identification of reasonable and prudent alternatives to preclude jeopardy, and mandated reasonable and prudent measures to reduce incidental take. These can affect project implementation.

Since the Biological Assessment and EIS must evaluate the potential impacts on listed species, they can jointly assist in analyzing the effectiveness of alternatives and mitigation measures. If T&E species are subsequently identified in the project area, EPA recommends that the final EIS and Record of Decision not be completed prior to the completion of ESA consultation. If the consultation process is treated as a separate process, the Agencies risk USFWS identification of additional significant impacts, new mitigation measures, or changes to the preferred alternative.

30. We are pleased that Forest Plan minimum snag levels would be maintained with Alternative 2 (page 179), comprising 20 snags per 10 acres for regeneration harvests and 7 snags per acre greater than 20 inches on intermediate harvests (page 21). Will this level of snag retention allow adequately for bird species that require cavity habitat?

31. We are also pleased that a no treatment buffer of a minimum of 30-40 acres would be maintained around active goshawk trees (page 21).

32. Biodiversity may be an important consideration for new projects or when special habitats (i.e., wetlands, threatened and endangered species habitat) will be affected. The state of the art for this issue is changing rapidly. We recommend that potential project impacts on biodiversity be at least briefly evaluated and discussed in the NEPA document. CEQ prepared guidance entitled, "Incorporating Biodiversity Considerations Into Environmental Impact Analysis Under the National Environmental Policy Act," http://ceq.hss.doe.gov/publications/incorporating_biodiversity.html.

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.